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EXPLORING OLD TERRAINS WITH NEW TECHNOLOGIES MAKING ICT SERVICES AND APPLICATIONS WORK FOR THE POOR

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ABSTRACT

The faith in the transformative potential of new Information and Communication Technologies (ICTs) for development, it's also accompanied by concerns about the growing disparity between information haves and have-nots and the emergence of the 'zones of silence'—communities who are excluded from the digital revolution. Thus, in exploring landscapes of ICT and Social Accountability, it is imperative that we address the issue of social exclusion and strategies for inclusion: How and in what ways can ICTs help the poor and those who are socially excluded? How can ICT-based development strategies and policies be made more accountable to the unique needs of the dis-empowered? This paper provides a framework for examining the relations between poverty alleviation and ICT through a consideration of the role of intermediaries such as micro-finance institution. Using cases study design the study finds that institutional intermediaries and their development strategies play a significant role in connecting ICTs to the poverty reduction initiatives.

Keywords: *Information and Communication Technologies (ICTs), Poverty, India, Micro-finance, Digital Divide, Institutional Intermediaries.*

INTRODUCTION

The notion of 'digital divide' has become a favorite metaphor to describe uneven access to ICTs amongst various sections of the people, particularly those below poverty line (**Van Dijk, 2004**). Digital divide can be seen as a manifestation of socio-economic stratification that exists in society. The real question is *not* whether there will be absolute social inequalities in ICT diffusion—such inequalities will exist as in other dimensions of life but whether there are *any* unique constraints to the ICT diffusion & adoption amongst poor and what needs to be done to address them (**Norris, 2001**).

RESEARCH PROBLEM

Melkote and Steeves (2002) identified constrains the poor face in harnessing the potential of ICTs, in their ability to assess and evaluate ICTs and in their skills to use information resources available through ICTs. A similar point has been raised by **Van Dijk** (1999) when he refers to four 'successive' kinds of access problems: Lack of digital experience (awareness, motivation), lack of restricted access, lack of digital skills and lack of significant usage

opportunities. From this perspective, it is clear that even if problems associated with awareness, motivation and technical access are solved, inequalities are likely to continue because of lack of social capabilities and differential usage patterns and network connections. This raises the question as to how the poor could harness the potentials of the ICTs.

Experience from developing countries in using ICT for development has suggested that instead of competing for resources with fundamental developmental issues such as education, health, safe water, ICTs should be seen as an integral part of on-going developmental projects and never an end in itself (**Beardon, 2004**). Further, **Heeks** (1999) has argued that ICTs have a far more enabling power within the institutional intermediaries that serve the poor than the poor themselves.

Institutional intermediaries such as non-governmental organizations, community-based organizations, and associations, might create opportunities for taking the ICT applications and services closer to the poor. Building the capacities of the intermediary institutions to 'access, assess and apply' the ICTs for their development goals might enable them to be more responsive, efficient and effective in their role as development support workers. Thus our focus should shift to a consideration of how development context, institutions, and innovation interact (**Mansell and When, 1998**). The institutional capacity to deliver developmental resources effectively and efficiently can be bolstered with the ICT application and services. The question that we need to ask is that: What kinds of institutional intermediaries are likely to create opportunities for the use of ICTs as a pro-developmental tool?

RESEARCH QUESTIONS AND METHOD

In order to provide the empirical content to the argument developed above, this paper discusses how one particular developmental intermediary, *micro-finance institutions* (MFIs), seeks to apply ICTs for development. MFIs are non-governmental organizations (NGOs) who have as their primary objective poverty reduction and empowerment of the socially excluded through a combination of financial and social intervention. MFIs are seen as a critical linkage between the state, the market, and the poor communities, capable of enhancing the bargaining power of the poor (**Prahkalad, 2005**).

The study is based on research of twenty MFIs in the state of Tamil Nadu, (South) India. Data were collected by multiple means. This includes a standard repertoire of techniques like in-depth interviews with key informants, the study of internal documents, and current systems in use. Maximum of diversity sampling strategy was employed for site selection, where many self-help groups (SHGs) promoted by the MFIs served as a criterion for selection. The SHGs promoted by MFIs under investigation ranged from 13 (new MFIs) to 1200 (matured MFIs). Thirty key informants representing the top management, project managers, accounts department, field staff were interviewed.

The purpose of this research was primarily to describe and explore the kinds of ICT applications and services that are currently pursued by the micro-finance institutions and the barriers that exist in achieving them. A case study design, as laid out by **Benbasat (1984) and Yin (1994)**, was employed. Case study design is well suited for capturing the knowledge of the practitioners and developing theories that are grounded in data. However, before any formalization of knowledge, it is incumbent to document the experiences of the micro-finance practitioners with the ICTs (**Benbasat, Goldstein and Mead, 2002**).

The following broad questions guide the case study:

1. How do the developmental workers perceive computers as a developmental tool in the context of the microfinance initiatives?
2. To what extent are the ICT applications seen as relevant to the micro-finance initiatives and what factors drive these demands?
3. What are the ICT applications that are being developed currently? For what strategic purpose? What are the perceived barriers to addressing these strategic goals?

LARGER CONTEXT: MICRO-FINANCE INTERVENTIONS

Micro-finance initiatives have shown that poor is a viable banking proposition (with high rates of recovery) and that there is a great level of demand for such services from women (**Harper, 1998: Wright, 2000**). MFIs have bought in institutional changes to banking systems and micro-enterprise development which can provide poor, access to credit and enhance their opportunity.

India is fast becoming one of the largest microfinance markets in the world, especially with the growth of the women's self-help groups (SHGs) which are set to reach 17 million women by 2008 (**Fisher and Sriram, 2002**). **Fisher and Sriram** note that "India has nearly 400 million people living below or just above the austerely defined poverty line. Approximately 75 million households, therefore, need micro-finance. Of these, 60 million households are in rural India, and the remaining 15 million are urban slum-dwellers. The current annual credit usage of these households was estimated in 1998 to be US$10 billion." They further calculate that NABARD's target for 2008 of one million SHGs will absorb at least $1041 million worth of funds. Insurance demand for the sector is not known precisely but is likely to be in the same magnitude as the savings and credit projections.

All these demand-projections present enormous challenges for the micro-finance sector. The sector is growing in size, scope and many of the micro-finance institutions are beginning to apply professional management practices to face this challenge. However, the micro-finance sector still caters to the needs of a tiny section of the potential. In order to facilitate micro-enterprises and promote sustainable poverty alleviation programs, a critical need has been felt to expand the coverage of micro-finance to more areas of the country, involve more organizations in the activity and promote the development of the skills required for undertaking the activity. Regulatory and legal frameworks are being created to support such efforts.

RESEARCH CONTEXT: SELF-HELP APPROACH TO MICRO-FINANCE IN TAMIL NADU

The development sector has increasingly recognized the importance of micro-finance as a strategy for poverty alleviation in Tamil Nadu. In Tamil Nadu, a particular approach to micro-finance—viz. Self-Help group-based model- is widely adopted. NGOs and the State Government (through their autonomous body TNCWD) and some private banks (e.g., ICICI) are involved in promoting SHGs.

Self Help Groups (SHG) is an informal association of 10 to 20 women, socio-economically homogeneous with a background of affinity, who meet regularly to transact the business of saving and credit. The SHGs mobilize savings from the individual members and extends credit from the funds so mobilized to the needy members for consumption and investment purposes (**Karmakar, 1999**). The groups often take up other issues for the

fulfillment of common interests. SHGs draw on the poor women's ability to manage their affairs and take responsibility for their actions, to pool in their resources and to support and if need be, discipline each other.

The empowerment of women, non-formal education, and development of micro-enterprise are integral to SHG activities. The SHGs not only provide members with opportunities to carry out economic activities but also serves as a forum for discussion and analysis of social and economic situations to arrive at the cause of their problems. By promoting SHGs, MFIs not only exploit the group-based lending approach but also intervene to improve the socio-economic status of poor. Table - 1 provides a list of activities MFIs under study were engaged as a part of their social intermediation efforts. This has implications for design and implementation of ICT based information systems.

Table - 1: Social Intermediation Activities of MFIs

Enabling SHG* participation in financial matters (e.g., interest rates setting, etc.), norms setting, leadership roles, etc. through training and capacity building.
Enabling SHGs to build their resourcefulness, self-reliance, and mobilization (through own savings, external agencies, etc.) of funds.
Enabling acquisition of new Income Generating Activities (IGAs).
Supporting family decision making, mobility, and sharing of work.
Playing the institutional role as mediators concerning the government and the market.
Taking up of issues related to women's well being, e.g., liquor consumption, wife battering, etc.
Making demands on the public systems, e.g., health, sanitation, etc.
Enabling participation in the public for like local government bodies.
*Self Help Groups (SHG)

Computer System in Use in the MFIs in Tamil Nadu

None of the organizations under the study had a dedicated computer-based information system for dealing with the micro-finance activities. However, they had the standard popular Personal Computers (PCs), which were not connected to the net via Local Area Network (LAN). Only one organization had four of its eight PCs connected via LAN and had access to the Internet. The access was however restricted to the top management and the project managers. The standard computer application was office automation software like the MS Office. The MS Word is favorite word processing software used, and MS Excel is usually used for processing financial data. Twelve organizations had accounting software, called Tally to carry out routine accounting work.

In most cases, the computer systems are under the direct control of the director or are used by the administrative/accounting departments. Access to computer systems by other staff members is practically not possible because of the location of the system, which is usually in the director's room or in the accounting department (which has some rules for entry and exit). However, all the 20 MFIs under the study were in the process of drawing up a plan to acquire the software. They were in a dilemma whether to buy the software off-the-shelf. They perceived limited software options in the market, and the MFIs were doubtful of their local relevance, even though there is little commercially available software targeting this sector. The alternative was in developing their software, which was an expensive proposition with high risks of development.

Some MFIs had even worked a detailed 'requirement specification' that is expected of a computer-based information system.

While acknowledging the potential benefits of a computer-based information system for their organization, the critical problem they perceived was that of the difficulty of computer systems to model the information flow between various stakeholders (MFI-NGO, banks, donors, SHGs, individual members, and statutory bodies).

Almost all the respondents felt that there is a need to have a reliable computer-based information system. MFIs are under pressure to scale-up their operations. This means forming more SHGs and, mobilizing more substantial financial resources to meet these costs. The MFIs are now raising money from the banks (government and private) to on-lend them to the groups. This requires them to keep up-to-date, all the information about their operations. They should be available on time and should be very accurate and meet the demands of the donors. Further, the MFIs are now relying on multi sources of finance to sustain their organization. This requires them to prepare the reports and statements specific to the requirements of diverse donor agency.

Table - 2: Perceived Benefits of Computer Applications

	Can you give a list of five benefits of using computers for your work?
1	Efficiency improvement, mainly administrative work.
2	Better financial management—particularly budgeting and managing and servicing loans.
3	Better monitoring of SHGs and better evaluation opportunities.
4	More accurate information, regarding SHG performance and general data about groups.
5	Better service to the target group (poor women).
6	Communicating with other MFIs and networking with stakeholders (donors, banks, government, etc.).
7	Speedy and accurate reports for different stakeholders (donors, government, etc.).

Existing information system is seen to be inadequate to meet the information needs. Also, the process of entering the data and preparing the standard financial reports is very time-consuming. Even though some organizations had accounting packages, this general purpose software did not meet the requirements of the users (e.g., the local language).

Also, the demand to meet the strategic goals (sustainability, outreach, accountability) means that MFIs are forced to consider efficient and effective ways to deliver their service, much like the market system. The Table - 2 and three below provide a thematic summary of the interview data on perceived benefits and obstacles of adopting computer-based information systems.

Table - 3: Perceived Obstacles of Computer Applications

	Can you provide a list of five obstacles that you face in using computers for your work?
1	Financial resources are limited.
2	Computer literacy is very low, knowledge and skills needed to use computers for work are very limited.
3	Less time to learn new computer applications, particularly for field

	workers, time spend with computers might reduce the time available for fieldwork.
4	Difficulty in coordination with field workers and MFI headquarters.
5	Problems with collecting reliable data for entry into computers for processing.
6	Lack of appropriate software and applications addressing the unique needs of the organizations.
7	Existing practices might have to be changed, and this might be a complicated process, particularly about financial records and reporting systems.

Challenges Facing MFIs

Three significant concerns animate discussions on MFIs under study: Sustainability, Outreach (and Impact) and Accountability. Computer applications are sought to enable the MFI to reach these three strategic goals and thus are seen as a means to achieve this end. **Child** (1987) has argued that the implications of the ICTs extend from the strategies of management rather than the characteristics of the technology. This holds true for MFIs under investigation.

Sustainability

Sustainability in the context of the environment is well recognized as a critical development priority. In the context of the NGO-MFI, sustainability can be defined as "the capacity to ensure that the project benefits continue after the end of the project implementation period."

Sustainability is concerned with two elements viz.: The final benefits which the people experience because of the project and the means through which impacts are continually generated. The NGOs have consistently failed in being sustainable in these terms. Now, there is an apparent drive for cost-effectiveness in the use of donor funds and greater direct funding of NGOs by officials of aid agencies. For donors, financial sustainability is a vital issue.

One of the key strategic goals of the MFIs is to become sustainable within a specific time frame. Thus sustainability relates to the efforts that achieve financial sustainability through scale expansions—by increasing the number of clients or expanding the range and profitability of the financial services (portfolio quality).

Outreach (and Impact)

The second strategic goal of the MFIs is to increase the outreach and impact of the project/program. Outreach encompasses the number of beneficiaries and their quality including the outcome of the intervention. It refers to how the micro-finance intervention can be measured and attributed. If the intervention pertains to poverty reduction, it is essential to know whether by how much and for whom poverty has reduced (or increased) and the extent to which these changes have occurred as a result of the micro-finance intervention. Extending the outreach and continuously assessing the impact is one of the key strategic goals of an MFI. However, outcome and impact over time are tough to measure. Outreach includes proper targeting of the clients. This relates to the effectiveness of measures to exclude non-poor clients.

Accountability

Accountability can be defined "as the ability to account for past actions concerning the decisions which precipitate such actions, the wisdom of those decisions, the extent to which they were adequately and efficiently implemented, and the value of their effects" (**Stufflebeam, 1971**). However, there is no precise definition of what precisely an MFI should be accountable for. The MFI is accountable to donors, government, staff, and beneficiaries. Some dimension of accountability can be identified including (**Smith-Sreen, 1995**) financial, project and social accountability. While standard disclosure norms bind MFIs, the scope of the accountability stretches beyond one demanded by legal mandate. The MFI is expected to have a high level of accountability to its members, i.e., the beneficiaries. Different stakeholders have different demands for accountability, and these are likely to be reflected in the design of the ICT based information system. Member accountability is seen as a critical need by most MFIs.

Potential Application and Perceived Problems in Micro-finance Context

Computers are seen by the top management and the project managers, as a strategic tool to enable the organizing of the NGO to gain greater control over the variables that determine their performance as well as the performance of the SHGs they promote. Despite being in the development sector, the operational and procedural strategies resemble the computer applications of managerial effectiveness in the corporate sector. Information-communication resources and the enabling technologies are both seen as potential management and a transformative tool. Internal documents of the MFIs regarding their requirement for computer applications reflect these traditional "business-like" concerns. This is not surprising because many of the NGOs are moving from the charity-based social intermediation to the profit-based financial intermediation. Table 4 and 5 provides a summary of users' perception of opportunities and challenges facing ICT application for MFI.

Table - 4: Major Challenges in computer application micro-finance initiatives

➲ Too many local variations in the delivery services within the SHG approach.
➲ The problem of segregating social Vs. financial intermediation costs.
➲ Informal Vs. Formal systems of the transaction—what goes on inside the groups is essential to monitor, but extremely difficult implement.
➲ The massive volume of data—but of small numbers (ranging from 50 cents per week).
➲ Consistency in information flow from the SHG to the headquarters of the NGO and feedback mechanisms.
➲ Lack of proper prudential norms and unclear accounting systems and standards for MFIs.
➲ Training and Re-training the poor to maintain records properly in the form that information systems can accept.
➲ Software in local language familiar to field workers and SHG members are not available.

Table - 5: Perceived opportunities in computer application micro-finance initiatives

➲ As a decision support system—project and institutional level.
➲ As a tool for resource planning (e.g., Revolving Loan Fund (RLF) estimation).
➲ To manage risks, e.g., delinquency management, credit history tracking.
➲ Reduction in transaction cost-for the institution and the borrowers.
➲ Improve operational efficiency through lowering of administrative costs.

➲ Internal controls/audit trails for statutory and donor purposes.
➲ For gathering baseline data, process documentation (preparation of case studies).
➲ To manage growth scaling up of activities-- the ability to handle a larger volume of data.
➲ Networking with other NGOs working donors, banks, etc.

ICT strategy for the micro-finance initiatives

The micro-finance administration is an information-intensive activity to which application of the ICTs has long been recognized as having enormous potential. The three above mentioned strategic goals was in turn related to three essential information-intensive activities by MFIs. These activities form the core of the "operational" ICT strategy of an MFI.

Monitoring refers to "frequently large routine collection and analysis of reporting on information about the performance of the work in a program or project, comparison of this with the program or project plans and connected discussions about and proposals for corrective action." (Dale, 1998) It involves information from and about the intermediary institutions (at the NGO level, SHG level, project-level and program level).

Evaluation refers to a "more thorough examination, at specified points in time, of program or projects, usually with an emphasis on impacts and additionally, commonly on efficiently, effectiveness, relevance, replicability and sustainability" (ibid). It involves collecting information from and about the poor such as baseline data.

Transparency refers to open sharing of information about the organization and its activities with the different stakeholders involved (viz. donors, government, SHGs and their members, staff, etc.). A key to sharing power is sharing information. Already, there is a commitment to transparency at the SHG level (all SHG-level transactions are conducted openly). An accountable MFI is expected to disseminate information about its activities regularly. The ICT systems are expected to facilitate transparency at the organizational or the project-level.

All the three strategic goals of the ICTs involve acquisition, processing, and sharing of the information in a rapid and timely fashion. The ICTs are perceived to have a potential to permit such information-based activities to be carried out effectively and efficiently. The MFIs having extensive information detailing portfolio quality, resources expended, organizational, SHG performance and program output, etc. would enable persons with the management responsibilities at all levels to engage more knowledgeable in monitoring and evaluation. Sustainability was linked to monitoring (e.g., monitoring portfolio quality, delinquency management, and cash flow). Outreach and impact were linked to evaluation (e.g., collecting baseline data such as asset base, income-level, etc.). Accountability was linked to transparency (e.g., allowing scrutiny of utilization of funds, allowing the members and the staff to access information promptly). These inter-related goals formed the foundation for the systematic perception of ICTs. However, a two key barrier for design, development, and deployment of ICT application pertains to resource constraints and segregation of social and financial intermediation.

RESOURCE CONSTRAINTS

The funds are often perceived to be inadequate given the targets and demand for the micro-finance services amongst the poor. Most available funds are earmarked for the financial and the social intermediation activity (like staff salary, SHG formation training costs and revolving loan funds). The question confronting the MFIs is whether the limited resource for capacity building can be applied to developing the ICT capacities or are they better used for

other high priorities such as social mobilization of additional groups? So if the MFI decides to go ahead with the ICT strategy, which should absorb the cost? Is it the government, donor or the MFIs themselves? Can private initiatives help in this stage? There is a grave concern here because the resources might be wasted or poorly utilized. Can the MFIs be profitable (sustainable) enough to cover the ICT expenses too?

SOCIAL AND FINANCIAL INTERMEDIATION

While financial intermediation is seen as essential for sustainability, it is the social intermediation activities that give MFIs their legitimacy as for as developmental action are concerned. The MFIs thus follow two simultaneous goals: institutional and developmental sustainability. These parallel goals are likely to create incompatibility with the existing systems. For example, the need to financially sustain the project might stretch the MFIs resources to focus on a small number of 'profitable clients.' An automated information system might incorporate these values through how financial indicators have arrived (e.g., credit rating). Further, monitoring and evaluation need to incorporate the larger issues such as the impact on poverty reduction and women's empowerment. MFIs find it hard to model both financial and social intermediation activities in their information system.

DISCUSSION AND CONCLUSION

*M*FI is characterized by a high level of information use and has strongly felt the need for comprehensive ICT products and services. Such applications are few and existing solutions are considered inadequate for the demands of the sector. Several factors can account for this gap. The micro-finance institutions have traditionally been relatively small in size and the scope of their activities. This has made the sector unattractive for systems developers to develop software and hardware "solutions" suitable for the sector.

The MFIs are faced with a need to scale up their operations. They also face an imperative to adopt the professional management practices and sophisticated management information systems to handle the emerging organizational and developmental demands. These factors are forcing the MFIs to develop a deeper understanding of the process of accumulation and dissemination of information and the technologies that enable them.

Further, the micro-finance is continuously forced to examine their strategies and procedures in the light of the experience of other micro-finance institutions and other kinds of development intervention strategies. Macro-level changes in the financial and legal system of the country also add to the growing uncertainty. Such changes are likely to lead to changing information needs and changing demands on the system. The MFIs are becoming more complex mechanisms for reducing 'information problems' Such as the accounting standards, disclosure requirements, credit rating and constant monitoring and evaluation. While there is a general realization that costs of investing in the ICT solutions might be high, there is also a growing perception that the cost of not doing so is even higher. Technological and socio-economic factors coupled with unique organizational context are making the MFIs evaluate the opportunities provided by the new ICTs.

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